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EXAMINER	
TAYONG, HELENE E	
ART UNIT	PAPER NUMBER
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/777,612	BHAKTA ET AL.	
	Examiner	Art Unit	
	Helene Tayong	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☒ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/2/04* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 14 is objected to because of the following informalities: The word "claims" should be replaced with clocks. Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,7,12,16 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Farjad-Rad et al.(US 7167517 B2).

(1) with regards to claims 1, 12 and 26;

Farjad-Rad et al. discloses a receiver equalizer (fig. 5) comprising:

a sampler (12) that samples a signal indicative of an input communication signal to determine digital decision output signals having a predetermined data rate (col.5, lines 53-58);

a filter that receives digital decision output signals from said sampler and generates equalization signals therefrom (col. 5, lines 59-67); and

a summer (20) coupled to the sampler and the filter, said summer combines together the input communication signal with the equalization signals (col.5, lines 57-59).

wherein a pluralities of clocks control timing associated with the sample, said clocks having frequencies that are less than a data rate of the communication device (col.6, lines 14-16).

(2) with regards to claims 7 and 16 ;

wherein the filter receives unlatched digital decision output signals from said sampler(col 5., lines 53-67).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-5, 8,10,11,13,14,17,19, 27and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farjad-Rad et al.(US 7167517 B2) in view of Park et al.(US 2004/0076228 A1)

(1) with regards to claim 2;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching wherein said clocks have frequencies that are one-half the predetermined data rate.

However, Park et al. in the same field of endeavor, teaches wherein said clocks have frequencies that are one-half the predetermined data rate (fig. 4 and 5, pg. 2, [0031], lines 5-6).

Due to a difference in time required for transmitting signals through channels, there is a time skew between transmitted signals or between a clock and a transmitted signal The skew has an adverse effect on signal transmission at a high speed. It would have been obvious to one of ordinary skill in the art at the time the invention was made

to recognize that for the normal operation of an input circuit in a receiver, a setup/hold time should be sufficient (pg. 1, [0011], lines 8-9).The motivation to utilize Park et al's clocks instead of Farjad-Rad et al.'s was to improve on high speed transmission.

(2) with regards to claim 3;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching wherein said clocks include two clocks that are 180 degrees out of phase with respect to each other and activate the sampler on rising edges of the two clocks

However, Park et al. in the same field of endeavor, teaches wherein said clocks include two clocks that are 180 degrees out of phase with respect to each other and activate the sampler on rising edges of the two clocks (fig. 5, pg. 3, [0035], lines 13-14).

Due to a difference in time required for transmitting signals through channels, there is a time skew between transmitted signals or between a clock and a transmitted signal The skew has an adverse effect on signal transmission at a high speed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that for the normal operation of an input circuit in a receiver, a setup/hold time should be sufficient (pg. 1, [0011], lines 8-9).The motivation to utilize Park et al's clocks instead of Farjad-Rad et al.'s was to improve on high speed transmission.

(3) with regards to claim 4;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching wherein said plurality of clocks comprise a set of quadrature clocks.

However, Park et al. in the same field of endeavor, teaches wherein said plurality of clocks comprise a set of quadrature clocks (fig. 5, pg. 3, [0035], lines 13-14).

Due to a difference in time required for transmitting signals through channels, there is a time skew between transmitted signals or between a clock and a transmitted signal The skew has an adverse effect on signal transmission at a high speed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that for the normal operation of an input circuit in a receiver, a setup/hold time should be sufficient (pg. 1, [0011], lines 8-9).The motivation to utilize Park et al's clocks instead of Farjad-Rad et al.'s was to improve on high speed transmission.

(4) with regards to claim 5;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching a clock circuit coupled to said filter and said sampler, said clock circuit generates a plurality of inter-symbol interference ("ISI" cancellation clock signals that operate said filter from the set of quadrature clocks used to operate the sampler.

However, Park et al. in the same field of endeavor, teaches a clock circuit coupled to said filter and said sampler, said clock circuit generates a plurality of inter-symbol interference ("ISI" cancellation clock signals that operate said filter from the set of quadrature clocks used to operate the sampler (fig. 4, pg. 3, [0034], lines 1-16).

Due to a difference in time required for transmitting signals through channels, there is a time skew between transmitted signals or between a clock and a transmitted signal The skew has an adverse effect on signal transmission at a high speed. It would have been obvious to one of ordinary skill in the art at the time the invention was made

to recognize that for the normal operation of an input circuit in a receiver, a setup/hold time should be sufficient (pg. 1, [0011], lines 8-9).The motivation to utilize Park et al's clocks instead of Farjad-Rad et al.'s was to improve on high speed transmission.

(5) with regards to claims 8 and17;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching wherein said sampler comprises a pair of processing paths, one path for generating gradient bits and another path for generating data bits , each path comprising an amplifier and at least one sense amplifier.

However, Park et al. in the same field of endeavor, teaches wherein said sampler comprises a pair of processing paths, one path for generating gradient bits (odd) and another path for generating data bits (even), each path comprising an amplifier(113) and at least one sense amplifier(125) (pg. 3, [0035], lines 1-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the processing paths of Park et al.'s to the system of Farjad-Rad et al in order to compensate for attenuated high -frequency component signals so that a skew between data and clock are compensated for. The motivation to add these processing paths will be to facilitate a high speed data transmission (pg.2, [0019], lines 6-7).

(6) with regards to claims 10 and19;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching wherein the filter comprises one or more taps, the sampler comprises one or more sense amplifiers, and wherein equalization can be disabled in

the equalizer while preserving currents from the one or more taps by forcing the one or more sense amplifiers into a pre-charge state.

However, Park et al. in the same field of endeavor, teaches wherein the filter comprises one or more taps, the sampler comprises one or more sense amplifiers (fig. 6, 121-128), and wherein equalization can be disabled in the equalizer while preserving currents from the one or more taps by forcing the one or more sense amplifiers into a pre-charge state(pg. 3, table 1, [0041], lines 1-4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of equalization of Park et al in order to acquire the optimal sampling clock for sampling the external data signal. The motivation to combine Park et al's method of equalization will be to achieve a high speed equalization when receiving data.

(7) with regards to claim 11;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching wherein equalization can be enabled by releasing the one or more sense amplifiers from the pre-charge state.

However, Park et al. in the same field of endeavor, teaches wherein equalization can be enabled by releasing the one or more sense amplifiers from the pre-charge state (pg. 3, table 1, [0041], lines 1-4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of equalization of Park et al in order to acquire the optimal sampling clock for sampling the external data signal. The motivation to

utilize Park et al's method of equalization will be to achieve a high speed equalization when receiving data.

(8) with regards to claim 13;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching wherein the clock circuit comprises variable time delay elements whose time delay can be set during a calibration of the ISI cancellation clocks.

However, Park et al. in the same field of endeavor, teaches wherein the clock circuit comprises variable time delay elements whose time delay can be set during a calibration of the ISI cancellation clocks (Table 1, pg. 3, [0040], lines 5-9).

Due to a difference in time required for transmitting signals through channels, there is a time skew between transmitted signals or between a clock and a transmitted signal The skew has an adverse effect on signal transmission at a high speed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that for the normal operation of an input circuit in a receiver, a setup/hold time should be sufficient (pg. 1, [0011], lines 8-9).The motivation to utilize Park et al's clocks instead of Farjad-Rad et al.'s was to improve on high speed transmission.

(9) with regards to claim 14;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching wherein said quadrature claims have frequencies that are less than a data rate of said digital decision output signals.

However, Park et al. in the same field of endeavor, teaches wherein said quadrature claims have frequencies that are less than a data rate of said digital decision output signals (pg. 2, [0031], lines 5-6).

Due to a difference in time required for transmitting signals through channels, there is a time skew between transmitted signals or between a clock and a transmitted signal The skew has an adverse effect on signal transmission at a high speed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that for the normal operation of an input circuit in a receiver, a setup/hold time should be sufficient (pg. 1, [0011], lines 8-9).The motivation to utilize Park et al's clocks instead of Farjad-Rad et al.'s was to improve on high speed transmission.

(10) with regards to claims 27 and 29;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching generating a plurality of inter-symbol interference cancellation clock signals from the sampling clocks and using said inter-symbol interference cancellation clock signals when generating the equalization signals (pg. 3, [0036], lines 1-14).

However, Park et al. in the same field of endeavor, teaches generating a plurality of inter-symbol interference cancellation clock signals from the sampling clocks and using said inter-symbol interference cancellation clock signals when generating the equalization signals (pg. 3, [0036], lines 1-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the processing paths of Park et al.'s to the system of Farjad-Rad et al in order to compensate for attenuated high -frequency component signals so

that a skew between data and clock are compensated for. The motivation to add these processing paths will be to facilitate a high speed data transmission (pg.2, [0019],lines 6-7).

5. Claims 6,15 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farjad-Rad et al. in view of Chen et al.(US 7092437 B2)

(1) with regards to claims 6 ,15 and 28;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching wherein the equalizer includes a sensitivity test process in which the at-speed sensitivity of the equalizer can be determined, the process includes disabling an input amplifier, providing a predetermined set of tap coefficients to the filter, determining if the sampler generates a repeating pattern associated with the set of tap coefficients, and repeating the sensitivity test process with other predetermined sets of tap coefficients until the sampler no longer determines the repeating pattern associated the set of tap coefficients provided to the filter .

However, Chen et al. in the same field of endeavor teaches wherein the equalizer includes a sensitivity test process in which the at-speed sensitivity (interpreted as optimal training interval) of the equalizer can be determined, the process includes disabling an input amplifier, providing a predetermined set of tap coefficients to the filter, determining if the sampler generates a repeating pattern associated with the set of tap coefficients, and repeating the sensitivity test process with other predetermined sets of tap coefficients until the sampler no longer determines the

repeating pattern associated the set of tap coefficients provided to the filter (col. 1, lines 39-54) .

Some current training-based equalization algorithms include schemes for determining intervals for initiating a training sequence. The idea of these schemes is that no training sequence is transmitted until the abrupt change detection algorithm detects changes in channel parameters that may cause an equalizer failure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the sensitivity test process of Chen et al. in the equalizer system of Farjad-Rad et al. to re-adjust the channel estimates at the receiver so as to recover from channel failure. The motivation to combine these would be to provide a training decision scheme having reduced complexity and improved channel utilization.

6. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farjad-Rad et al in view of Tonietto et al (US2005/0135471 A1)

(1) with regards to claims 9 and18 ;

Farjad-Rad et al. discloses all of subject matter as described above except for specifically teaching the equalization signals comprise inter-symbol interference ("ISI") equalization currents and the equalizer further comprises an input amplifier coupled to the summer and having a gain and the equalizer also comprises a coefficient normalization circuit that normalizes the ISI equalization currents to the input amplifier's gain.

However, Tonietto et al. in the same field of endeavor teaches wherein the equalization signals comprise inter-symbol interference ("ISI") equalization currents

([pg. 1, [0011], lines 1-6) and the equalizer further comprises an input amplifier coupled to the summer (fig. 4, 460) and having a gain and the equalizer also comprises a coefficient normalization circuit that normalizes the ISI equalization currents to the input amplifier's gain (fig. 2, [008], lines 1-13)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize equalization signals comprise inter-symbol interference ("ISI") equalization currents of Torietto et al.'s to the equalization system of Farjad-Rad et al's equalizer in order to efficiently recover data from the data stream in the signal received via the communication media. The motivation to utilize Torietto et al.'s signals equalization signals was to improve on speed of receiver and compensate for the distortions of the channel.

7. Claims 20, 23,25,30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farjad-Rad et al, Park et al, as applied to claim 29 above and further in view of Chen et al. (US 7092437 B2) .

(1) with regards to claim 20;

Farjad-Rad et al. discloses a receiver equalizer (fig. 5) comprising:

sampler (12) that samples a signal indicative of an input communication signal to determine digital decision output signals having a predetermined data rate (col.5, lines 53-58);

a filter that receives digital decision output signals from said sampler and generates equalization signals therefrom (col. 5, lines 59-67); and

a summer (20) coupled to the sampler and the filter, said summer combines together the input communication signal with the equalization signals (col.5, lines 57-59).

Farjad-Rad et al discloses all of subject matter as described above except for specifically teaching

(a) an input amplifier that receives an input communication signal.

(b) wherein the equalizer includes a sensitivity test process in which the at-speed sensitivity of the equalizer can be determined, the process includes disabling an input amplifier, providing a predetermined set of tap coefficients to the filter, determining if the sampler generates a repeating pattern associated with the set of tap coefficients, and repeating the sensitivity test process with other predetermined sets of tap coefficients until the sampler no longer determines the repeating pattern associated the set of tap coefficients provided to the filter .

(i) with regards to item (a) above;

However, park et al. in the same field of endeavor teaches an input amplifier that receives an input communication signal (fig. 6, 111-114, pg.2, [0033], lines 1-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the input amplifier of Park et al. in the equalizer of Farjad-Rad et al. in order to reduce the attenuation in high frequency components of signals in a transmission channel. The motivation to combine Park et al.'s input amplifier to the equalizer system of Farjad-Rad et al. will be to facilitate a high speed data transmission.

(ii) with regards to item (b) above;

However, Chen et al. in the same field of endeavor teaches wherein the equalizer includes a sensitivity test process in which the at-speed sensitivity (interpreted as optimal training interval) of the equalizer can be determined, the process includes disabling an input amplifier, providing a predetermined set of tap coefficients to the filter, determining if the sampler generates a repeating pattern associated with the set of tap coefficients, and repeating the sensitivity test process with other predetermined sets of tap coefficients until the sampler no longer determines the repeating pattern associated the set of tap coefficients provided to the filter (col. 1, lines 39-54) .

Some current training-based equalization algorithms include schemes for determining intervals for initiating a training sequence. The idea of these schemes is that no training sequence is transmitted until the abrupt change detection algorithm detects changes in channel parameters that may cause an equalizer failure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the sensitivity test process of Chen et al. in the equalizer system of Farjad-Rad et al. to re-adjust the channel estimates at the receiver so as to recover from channel failure. The motivation to combine these would be to provide a training decision scheme having reduced complexity and improved channel utilization.

(2) with regards to claim 23;

Same as in claim 17

(3) with regards to claim 25

Same as in claim 10

(4) with regards to claim 30-31;

Farjad-Rad et al.as modified by Park et al. discloses all of subject matter as described above except for specifically teaching wherein the equalizer includes a sensitivity test process in which the at-speed sensitivity of the equalizer can be determined, the process includes disabling an input amplifier, providing a predetermined set of tap coefficients to the filter, determining if the sampler generates a repeating pattern associated with the set of tap coefficients, and repeating the sensitivity test process with other predetermined sets of tap coefficients until the sampler no longer determines the repeating pattern associated the set of tap coefficients provided to the filter .

However, Chen et al. in the same field of endeavor teaches wherein the equalizer includes a sensitivity test process in which the at-speed sensitivity (interpreted as optimal training interval) of the equalizer can be determined, the process includes disabling an input amplifier, providing a predetermined set of tap coefficients to the filter, determining if the sampler generates a repeating pattern associated with the set of tap coefficients, and repeating the sensitivity test process with other predetermined sets of tap coefficients until the sampler no longer determines the repeating pattern associated the set of tap coefficients provided to the filter (col. 1, lines 39-54) .

Some current training-based equalization algorithms include schemes for determining intervals for initiating a training sequence. The idea of these schemes is that no training sequence is transmitted until the abrupt change detection algorithm

detects changes in channel parameters that may cause an equalizer failure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the sensitivity test process of Chen et al. in the equalizer system of Farjad-Rad et al. as modified by Park et al. to re-adjust the channel estimates at the receiver so as to recover from channel failure. The motivation to combine these would be to provide a training decision scheme having reduced complexity and improved channel utilization.

8. Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farjad-Rad et al., Park et al. and Chen et al. as applied to claim 20 above and further in view of Tonietto et al (US2005/0135471 A1)

(1) with regards to claim 22;

Farjad-Rad et al., Park et al, as modified by Chen et al. discloses all of subject matter as described above except for specifically teaching wherein the filter receives unlatched digital decision output signals from said sampler.

However, Tonietto et al. in the same field of endeavor teaches wherein the filter receives unlatched digital decision output signals from said sampler(fig.6, pg.4,[0053], lines 1-5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize unlatched digital decision output signals of Torietto et al.'s to the equalization system of Farjad-Rad et al. , Park et al, as modified by Chen's equalizer in order to efficiently recover data from the data stream in the signal received via the communication media. The motivation to utilize Torietto et al.'s signals

equalization signals was to improve on speed of receiver and compensate for the distortions of the channel.

(2) with regards to claim 24 ;

Farjad-Rad et al., Park et al, as modified by Chen et al. discloses all of subject matter as described above except for specifically teaching the equalization signals comprise inter-symbol interference ("ISI") equalization currents and the equalizer further comprises an input amplifier coupled to the summer and having a gain and the equalizer also comprises a coefficient normalization circuit that normalizes the ISI equalization currents to the input amplifier's gain.

However, Tonietto et al. in the same field of endeavor teaches wherein the equalization signals comprise inter-symbol interference ("ISI") equalization currents ([pg. 1, [0011], lines 1-6) and the equalizer further comprises an input amplifier coupled to the summer (fig. 4, 460) and having a gain and the equalizer also comprises a coefficient normalization circuit that normalizes the ISI equalization currents to the input amplifier's gain (fig. 2, [008], lines 1-13)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize equalization signals comprise inter-symbol interference ("ISI") equalization currents of Torietto et al.'s to the equalization system of Farjad-Rad et al. , Park et al, as modified by Chen's equalizer in order to efficiently recover data from the data stream in the signal received via the communication media. The motivation to utilize Torietto et al.'s signals equalization signals was to improve on speed of receiver and compensate for the distortions of the channel.

9. Claims 21 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farjad-Rad et al, Park et al. and Chen et al.(US 7092437 B2) as applied to claims 20 and 31 above, and further in view of Sakaki et al.(US 4145747)

(1) with regards to claims 21 and 32;

Farjad-Rad et al. and Park as modified by Chen discloses all of subject matter as described above except for specifically teaching wherein the sets of tap coefficients are provided to the filter in order from a maximum value to a minimum value of the tap coefficients.

However, Sakaki et al. in the same field of endeavor, teaches the sets of tap coefficients are provided to the filter in order from a maximum value to a minimum value of the tap coefficients (fig. 1,col. 2, lines 31-36).

Tap coefficients are calculated for every operational cycle of the equalizer. This causes a slow convergence of the value to the tap coefficient. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the set of tap coefficients of Sakaki et al to the teachings of Farjad-Rad et al and Park et al. as modified by Chen. The motivation to utilize these tap coefficients would be to provide rapid convergence of a tap gain control coefficients.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Plasterer et al (7177352 B1) discloses pre-cursor inter-symbol interference cancellation (ISI).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Tayong whose telephone number is 571-270-1675. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lui Shuwang can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Helene Tayong

3/28/07

SHUWANG LIU
SUPERVISORY PATENT EXAMINER